

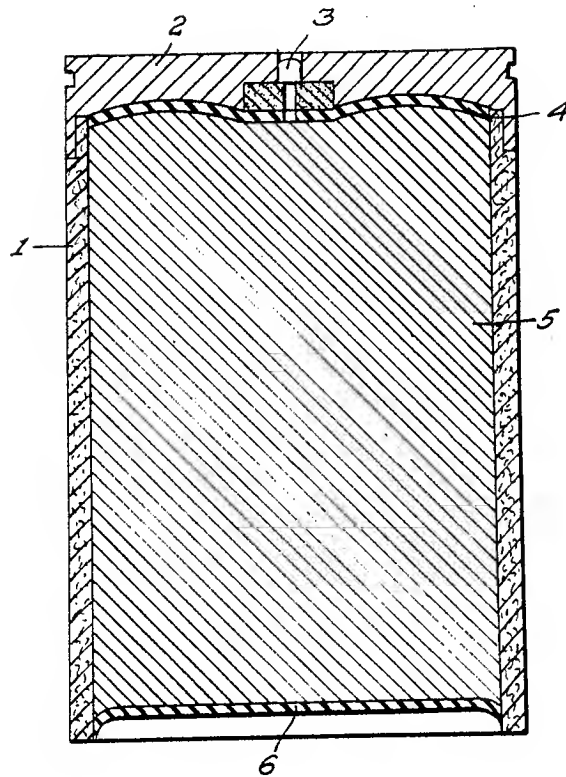
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R. H. ALLEN

3,457,860

FIRE CARTRIDGE

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INVENTOR,

*Ralph L. Allen*

BY: *Harry M. Saragovitz,*  
*Edward J. Kelly, R.P. Gibson &*  
*Herbert Bui* ATTORNEYS.

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3,457,860

## FIRE CARTRIDGE

Ralph H. Allen, 318 Paradise Road,  
Aberdeen, Md. 21001Original application July 6, 1967, Ser. No. 651,626, now  
Patent No. 3,401,633. Divided and this application Apr.  
29, 1968, Ser. No. 738,756

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U.S. Cl. 102—32

4 Claims

## ABSTRACT OF THE DISCLOSURE

A cartridge, which is actuated by a pyrotechnic primer, and which contains a special pellet that when loaded in a weapon and discharged, projects a special pellet in the burning state at a low velocity; thus the target material when contacted will not be disturbed, and though damp or wet, combustion will take place.

This application is a division of application Ser. No. 651,626, filed July 6, 1967, now Patent No. 3,401,633.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment to me of any royalty thereon.

This invention relates to a fire cartridge for starting a fire under adverse circumstances or in inclement weather by an individual who may encounter such circumstances.

It is, therefore, the object of this invention to overcome such adversity by providing a charge adaptable to any shell casing that may be inserted in and fired from the barrel of any conventional hand weapon to attain combustion in the target material.

This special pellet may be modified to fit any type shell casing, completely fills the case and requires no other material. The powdered pellet material is readily mixed and formed prior to pressing in the cartridge case, wherein the pressing is accomplished by a hydraulic press utilizing a pressure of approximately 800 p.s.i. The precaution of water-proofing is adequately provided for by employing a standard glue or adhesive at the bottom of the shell casing before compressing the pellet in the shell casing and at the top of the casing the pellet is sealed by a waterproofing material.

The drawing illustrates any conventional cartridge casing 1 with a cap 2 and a primer 3 in the center of the cap 2. On the inside of the cap 2 a standard glue or adhesive 4 is applied as shown for reception of the pellet 5. The open end of the shell casing 1, after the pellet 5 has been pressed therein, is sealed with a waterproof composition 6.

The following fire starter formulations were devised to yield the desired characteristics and the percentages are by weight:

## Composition No. 1

	Percent
Antimony sulphide -----	5-15
Barium nitrate -----	20-30
Lead styphnate -----	3-8
Tetracine -----	3-8
Magnesium oxide -----	3-8
F33D -----	40-60
(Ferric oxide, 51%; Zirconium, 49%).	

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## Composition No. 2

Barium nitrate -----	67-87
Red phosphorus -----	13-23
TNT -----	2-6
Aluminum oxide -----	3-7

The pellet may be pressed into any shell casing that is selected to fit the barrel of the particular hand weapon chosen for this type of survival equipment. This method of igniting a fire has the advantage while insuring combustion of the target, material also is ejected at a velocity low enough is not to disturb or scatter the material to which it is directed.

This device will naturally be of great assistance to the individual that is lost or separated from companions for the purpose of initiating a fire regardless of the prevailing conditions whether it be for domestic or incendiary purposes.

I claim:

1. A pellet for a cartridge shell casing adapted when initiated to ignite a fire even in damp materials in which the composition of said pellet consists of 5-15% antimony sulphide, 20-30% barium nitrate, 3-8% lead styphnate, 3-8% tetracine, 3-8% magnesium oxide and 40-60% F33D (51%  $\text{Fe}_2\text{O}_3$ -49% Zr).

2. A method of igniting a fire even in damp material comprising:

Compressing a powdered pellet material in any conventional cartridge shell casing, the pellet comprising 5-15% antimony sulphide, 20-30% barium nitrate, 3-8% lead styphnate, 3-8% tetracine, 3-8% magnesium oxide, and a mixture of approximately equal parts of ferric oxide and zirconium,

firing the shell casing containing said pellet to propel the pellet at a low velocity from any hand gun suitable to the cartridge shell, and igniting the target material even if damp without displacing said target material.

3. The method of igniting a fire as in claim 2 wherein the open end of the shell casing with the pellet material compressed therein is sealed with a waterproof composition.

4. A cartridge for igniting a fire even in damp materials comprising a shell casing, a pellet disposed in said casing, the composition of said pellet comprising 5-15% antimony sulphide, 20-30% barium nitrate, 3-8% lead styphnate, 3-8% tetracine, 3-8% magnesium oxide, and a mixture of approximately equal parts of ferric oxide and zirconium, means to seal the pellet within the shell casing, the composition of said pellet comprising 5-15% shell casing of a strength to propel the pellet from the casing in a burning state at a low velocity.

## References Cited

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BENJAMIN A. BORCHELT, Primary Examiner

JAMES FOX, Assistant Examiner

U.S. Cl. X.R.

102—28, 37, 90

PO-1050  
(5/69)

UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,457,860 Dated July 29, 1969

Inventor(s) RALPH H. ALLEN

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In column 2, line 50, "the composition of said pellet comprising 5-15%" is corrected to read --- and a primer actuated igniting propellant in said --- .

SIGNED AND  
SEALED  
NOV 18 1969

(SEAL)

Attest:

Edward M. Fletcher, Jr.

Attesting Officer

WILLIAM E. SCHUYLER, JR.  
Commissioner of Patents